

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (***Currently Amended***) An inspection method for inspecting an internal state of a sample a silicon on insulator (SOI) wafer by ~~a measurement of conductive material~~ measuring silicon islands within an insulating base material of a silicon oxide film formed on the sample in the SOI wafer, the method comprising a step of:

irradiating ions or electrons upon the surface of the inspection region of said ~~base material~~ silicon oxide film; and

imaging a surface image of secondary electrons emitted from said surface and from its vicinity;

etching said inspection region; and

imaging a surface image successively with secondary electrons emitted from an underlying surface and from its vicinity, renewed successively at the etched depth; and

measuring said ~~conductive material~~ silicon islands within said ~~base material~~ silicon oxide film based upon accumulated said surface images; and

inspecting the internal state of said ~~sample~~ SOI wafer.

wherein said etching is performed with an ion-beam having an acceleration voltage of 15 to 40keV, beam current greater than or equal to 3.6pA, and beam diameter greater than or equal to 18 nm, and

wherein said etching and said imaging of said surface image are performed at the same time.

2.-3. (***Cancelled***)

4. (***Currently Amended***) [[An]] The inspection method according to Claim 1, wherein said ~~sample is a~~ SOI wafer is manufactured by the SIMOX technology.

5. **(Currently Amended)** A manufacturing method of a piece for analysis using the inspection method according to Claim 1, wherein

said silicon islands ~~conductive material~~ within said silicon oxide film ~~base material~~ ~~is~~ are specified based upon said surface image;

said base material is etched away, other than a thin film of an analysis region, leaving said silicon oxide film ~~base material~~ in the depth direction which constitutes said analysis region, so that said analysis region is formed including at least a portion of specified said silicon islands ~~conductive material~~; and

thereby a piece for analysis having said analysis region is manufactured.

6. **(Currently Amended)** An analysis method using a piece for analysis manufactured by the manufacturing method of a piece for analysis according to Claim 5, wherein

~~by observation of said conductive material included in said piece for analysis,~~ the state of said silicon islands ~~conductive material~~ is analyzed based on the observation of said conductive material included in said piece for analysis.

7. **(Currently Amended)** An analysis method using an inspection method according to Claim 1, wherein

the three dimensional distribution of said silicon islands ~~conductive material~~ is analyzed from accumulated said surface images.

8. **(Currently Amended)** An analyzer used in the analysis method according to Claim 7, comprising:

a stage upon which said SOI wafer ~~sample~~ is mounted;

an ion source producing an ion beam having an acceleration voltage of 15 to 40keV and beam current if greater than or equal to 3.6pA, which is irradiated upon said SOI wafer ~~sample~~;

a beam control device for focusing and scanning the ion beam;

a secondary electron detector which detects secondary electrons emitted from said ~~sample~~ SOI wafer;

a control system which controls the ion source and the beam control device;
a imaging system which images the result of detection by said secondary electron detector as said surface image; and
~~and~~ an analyzing device which analyzes the three dimensional distribution of said conductive material from accumulated said surface images.

9. ***(Currently Amended)*** A manufacturing method of a SOI wafer using an analysis method according to Claim 6, wherein

said SOI wafer is manufactured under manufacturing conditions specified by feeding back the state of said silicon islands ~~conductive material~~ or its three dimensional distribution which has been analyzed.

10. ***(Cancelled)***